

Claims

1. A laminated zeolite composite, characterized in that it comprises a MFI membrane being constituted by a MFI type zeolite and having a $\text{SiO}_2/\text{Al}_2\text{O}_3$ (molar ratio) of 40 to 100,
5 and a porous substrate being constituted by a MFI type zeolite and having a $\text{SiO}_2/\text{Al}_2\text{O}_3$ (molar ratio) of 20 to 400, and that the MFI membrane is formed on the porous substrate.
2. A laminated zeolite composite according to Claim 1, wherein the MFI membrane has a thickness of 25 μm or less.
- 10 3. A laminated zeolite composite according to Claim 1 or 2, wherein the $\text{SiO}_2/\text{Al}_2\text{O}_3$ (molar ratio) of the MFI membrane decreases gradually from a side of the membrane contacting the porous substrate toward other side thereof.
- 15 4. A laminated zeolite composite according to any of Claims 1 to 3, which is used for separation of butane isomers.
5. A laminated zeolite composite according to any of Claims 1 to 3, which is used for separation of propane and propylene.
- 20 6. A method for producing a laminated zeolite composite comprising immersing a porous substrate in a silica sol-containing sol for membrane formation and forming a MFI membrane on the porous substrate under heating conditions; said method being characterized in that a porous substrate being constituted by a MFI type zeolite and having
25 a $\text{SiO}_2/\text{Al}_2\text{O}_3$ (molar ratio) of 20 to 400 is immersed in a sol for membrane formation having a $\text{SiO}_2/\text{Al}_2\text{O}_3$ (molar ratio) of 40 to 150 and a $\text{Na}_2\text{O}/\text{Al}_2\text{O}_3$ (molar ratio) of 15 or less.
7. A method for producing a laminated zeolite composite according to Claim 6, wherein a MFI membrane being
30 constituted by a MFI type zeolite and having a $\text{SiO}_2/\text{Al}_2\text{O}_3$,

(molar ratio) of 40 to 100 is formed.